

DOCUMENT RESUME

ED 395 414

EC 304 807

TITLE Attention Deficit Hyperactivity Disorder and the Schools. Task Force Report.

INSTITUTION Virginia State Dept. of Education, Richmond.

PUB DATE [Feb 95]

NOTE 44p.; A separate seven-page communication dealing with revisions caused by the new DSM-IV definition of ADHD, is appended.

PUB TYPE Information Analyses (070) -- Guides - Non-Classroom Use (055)

EDRS PRICE MF01/PC02 Plus Postage.

DESCRIPTORS *Attention Deficit Disorders; *Change Strategies; Clinical Diagnosis; Definitions; Disability Identification; *Educational Diagnosis; Educational History; Elementary Secondary Education; Family School Relationship; *Hyperactivity; Incidence; *Intervention; Medical Services; Parent Participation; School Districts; State Boards of Education; Student Evaluation

IDENTIFIERS *Virginia

ABSTRACT

This report of a Virginia interdisciplinary task force on children with attention deficit hyperactivity disorder (ADHD) in the schools reviews what is known about this disorder and presents recommendations to the Virginia Department of Education and local school districts. Recommendations include the need to provide a systematic program of inservice education and revise state rules, regulations, and guidelines in specified ways. Recommendations to local school districts include development of plans for programing for ADHD children and establishment of resource libraries. Incorporation of education regarding ADHD into all teacher training programs in the state is urged. Sections of the report discuss: (1) historical background of ADHD; (2) definition; (3) relationship to special education categories; (4) prevalence; (5) identification and assessment; (6) the schools' role in the assessment and diagnostic process for ADHD; (7) medical interventions; (8) school-based interventions; (9) parent/family issues; (10) controversial interventions; and (11) conclusions. An attachment updates the ADHD definition based on the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders. (Contains 41 references.) (DB)

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Task Force Report

ATTENTION DEFICIT HYPERACTIVITY HYPERACTIVITY HYPERACTIVITY DISORDER AND THE SCHOOLS

Virginia Department of Education

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I Acknowledgements

ACKNOWLEDGEMENTS

Each member of the task force made significant contributions to the content of the document through research and professional viewpoints. Special recognition is given to Dr. Ron Reeve, Associate Professor, Curry School of Education, University of Virginia. Dr. Reeve served as consultant to the task force and was responsible primarily for organizing the content of the document. During the course of the field review of the report, we appreciated the many thoughtful insights given by parents, physicians, and school personnel who have profound interest in serving the needs of children with attention deficit hyperactivity disorders.

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III Recommendations

RECOMMENDATIONS

- I. The Virginia Department of Education should embark on a systematic program of in-service education with the goal of providing appropriate information regarding attention deficit hyperactivity disorder (ADHD) to all public school personnel in the Commonwealth. This should include the following:
 - A. Wide distribution of this document.
 - B. Intensive training for child study teams in identification and management of ADHD children.
 - C. Development of programs/materials for education of all school personnel, physicians, and parents about ADHD. In addition to in-service training, pamphlets should be developed alerting teachers and parents to the presence and characteristics of the disorder.
- II. The Virginia Department of Education should undertake whatever revisions of state rules, regulations, and guidelines are necessary to clarify that:
 - A. "Other health impaired" is a categorical option which may be used to find ADHD students eligible for special education services when the child's educational functioning is impaired.
 - B. Appropriately certified teaching *and/or* pupil personnel services staff may be designated to provide educational services for ADHD students.
 - C. Services should be provided through the regular education program unless the child is determined eligible for special education services.
- III. Local school division personnel should be required to develop plans for programming for ADHD children, whether the children are placed in special education or remain in the regular education program. The plans should include guidelines for the following:
 - A. Specifying membership of Child Study teams when a child with attention problems is under consideration,
 - B. Identifying children who have the disorder, including the assessment procedures to be utilized,
 - C. Working with physicians to monitor the effects of medications, and handling of medicines in school,
 - D. Adapting regular instructional programs to meet the special needs of children with this disorder, when appropriate. Possible appropriate modifications might include, for example, reducing the volume of required homework, shortening the length of bus rides, and providing more time for tests.
- IV. Local school divisions should set up resource libraries to serve as clearinghouses for information for school personnel, parents, and other citizens regarding ADHD. Included should be selected books and articles.
- V. Education regarding the characteristics and management of ADHD should be incorporated into the teacher training programs of all the colleges and universities of the Commonwealth.
- E. Making available to ADHD children, their teachers, and their families the support of Pupil Personnel Services staff including school psychologists, counselors, visiting teachers, school social workers, and nurses for consultation and direct service, when appropriate.

SUMMARY

Attention deficit hyperactivity disorder (ADHD) is a serious condition which affects from 3-5% of the school population. Defining characteristics of the disorder include age-inappropriate levels of motor activity, impulsivity, and inattention, with the attentional problems typically being the most debilitating. Differential diagnosis is difficult since many other physical and psychological conditions share characteristics with ADHD, including for example hearing and auditory processing deficits, drug abuse, and anxiety and depression. ADHD is not a separate handicapping condition under current special education law. However, many learning disabled, emotionally disturbed, or otherwise handicapped children also can be considered to have ADHD. When ADHD does not co-exist with another handicapping condition such as LD or ED, yet the condition is found to adversely affect school functioning, the child may be considered for special educational services in the category of "other health impaired."

Appropriate assessment should be multidisciplinary in nature. It involves gathering information from multiple sources

(parents, teachers, and others), assessing in different settings at different times of the day, looking at the multiple components of the condition (inattention, impulsivity, and hyperactivity), and using different types of assessment procedures (interviews, observations, behavior rating scales, standard psychometric instruments, and specific tests of attention, impulsivity, and activity level).

When a child in school evidences difficulties in attention, activity level, and impulse control, or when a child with a medical diagnosis of ADHD is brought to the attention of school personnel, it is appropriate for the Child Study Committee to become involved. The Committee can coordinate information gathering and preliminary interventions, and can determine whether or not further evaluation is appropriate. For ADHD children who have been determined to be handicapped under PL94-142, the IEP should contain additional provisions for dealing with problems resulting from the attentional difficulties.

Interventions for ADHD children often include medication. Positive effects of psychostimulant medications such as Ritalin occur in 60-80% of cases

of ADHD. However, medication alone is never sufficient to deal with the problems associated with the disorder. In school, teachers may need to make a variety of alterations in the regular instructional program in order for the ADHD child to achieve reasonable academic success. Behavior modification approaches and changes in the classroom environment to eliminate distractions have proven to be helpful in some cases. Currently the most promising approach involves "cognitive behavior modification" (CBM). The child is taught strategies for self-control and for coping with specific types of school work. ADHD children frequently also experience problems in social skill acquisition. A comprehensive treatment program must include help for the child in this area as well.

Families of ADHD children typically are under considerable stress as they attempt to cope with their child's behavior. School personnel can help by providing accurate information about the disorder through developing a library of useful materials as well as by encouraging parents with similarly affected children to interact and share ideas.

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INTRODUCTION

In almost every classroom in America one or more children are present who experience serious difficulty with inattention, impulsivity, and/or hyperactivity. School personnel find them to be difficult to teach; they do not respond in the same way as other children, and they often are disruptive. The children themselves are at risk for major academic and social failure unless they are managed appropriately. Clearly these children, whose condition is referred to as attention deficit hyperactivity disorder (ADHD), present challenges to educators which must be met. However, for most school personnel, information about ADHD is not readily available. What is available often is confusing and, not infrequently, contradictory. The purpose of this document is to provide an integrated source of information which reflects the most current knowledge about ADHD from medical, educational, social, and psychological/psychiatric perspectives. It is hoped that this information will be useful to educators, parents, and other involved individuals as they seek to help children who have this condition.

The Virginia Department of Education has received an increasing number of inquiries from local school divisions, parents, and other citizens about ADHD children. Questions such as the following are asked repeatedly: "If a child is diagnosed as ADHD, does s/he qualify for special education services?" "How do teachers and other school staff get help for ADHD children if they are not found eligible for special education?" "Should school division personnel encourage parents to get medication for their ADHD child?" "How should these behavior drugs be handled in school, on field trips, etc.?" The frequency of these and other related questions convinced the Department of the need to study these issues and make information available to all school divisions.

In March, 1988, a "Task Force on ADHD and the Schools" was appointed. Members were chosen to represent the various disciplines which are concerned professionally with ADHD children, including pediatrics, child psychiatry, clinical psychology, school psychology, counseling, school

health, law, special education, and of course regular education. In addition parents of ADHD children and staff of the Department of Education were represented. The Task Force met for one day-long initial session in March, at which time each member made short presentations regarding issues which they believed should be included in the document. More detailed presentations also were made regarding medical, educational, and psychological perspectives on the disorder. Dr. Ronald Reeve, a faculty member of the Curry School of Education at the University of Virginia, was commissioned to serve as consultant to the Task Force and prepare the document. The Task Force then met in June to critique the document and to determine what additional information should be included. A second draft was reviewed by Task Force members in the early fall. Their feedback was incorporated into a third draft, which was distributed statewide in November for public comment. Two additional meetings of the Task Force were held (February and March, 1989) to decide on the content and format of this final report.

HISTORICAL BACKGROUND

The condition which today is termed "Attention Deficit Hyperactivity Disorder" (ADHD) has been recognized as an entity for at least the last half-century. In fact, descriptions of the associated behaviors have been remarkably consistent over the years. For example, Werner and Strauss (1941) characterized the group of children with whom they were working as hyperactive, distractible, impulsive, emotionally labile, and perseverative. What have changed every few years are the names employed for the syndrome. Early terminology was based on assumptions about the causes of the disorder. In the 1930's and 1940's, children with the behaviors listed above were called "brain damaged" or "brain-injured" because it was known that brain damaged individuals showed similar behaviors. In the 1950's and 1960's it became clear that many children exhibited the same set of behaviors, though neither a definitive history of brain trauma nor the presence of abnormal neurological signs could be documented. The assumption was made that neurological dysfunctions nevertheless were at the root of the problems; they were just too subtle to be detected with the medical procedures available. Therefore, the terms "minimal brain damage" or "minimal brain dysfunction" came into common use.

"Hyperactive" became the term of choice for many professionals for characterizing these children by the 1960's. The argument was made, especially in education and psychology circles, that diagnosis of the underlying disorder was based on behavioral criteria, not on any documentable medical evidence. Thus it made sense to use a term which was descriptive of the observable behavior. Excessive motor activity at that time was considered to be the central problem evidenced by these children, and hence the term hyperactivity became widely used. By the 1970's most professionals were in agreement that difficulties in attention and concentration were more critical than activity problems as cardinal symptoms of the disorder. It was primarily because they could not pay attention, rather than because of their amount of movement, that these children experienced so much social and academic difficulty. This change in perspective was given official recognition with the publication of the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III) in 1980. The DSM, published by the American Psychiatric Association, is the "Bible" for psychiatric terminology. In DSM-III, the term "hyperactivity" was replaced as a diagnostic category by "attention deficit disorder" (ADD). Two

basic kinds of ADD were specified: ADD with hyperactivity, and ADD without hyperactivity.

The most recent terminology change, to "attention deficit hyperactivity disorder" (ADHD), was made in the 1987 revision of the DSM, known as *DSM-III-R*. That change apparently resulted as a compromise. Some members of the committee working on *DSM-III-R* felt that ADD could not exist without hyperactivity, while others felt strongly that hyperactivity often was absent in children with serious attention deficits. The basic characteristics of ADHD, as described in *DSM-III-R*, include attention problems, impulsivity, and hyperactivity. However, it is noted that these may occur in various proportions in affected children; thus it would be possible for a given child to have attention problems and impulsivity, with only a tiny element of hyperactivity, and still receive a diagnosis of ADHD. From the discussion of the disorder which is presented in *DSM-III-R*, it is clear that the committee continued to agree that attention deficits and impulsivity are relatively more debilitating aspects of the ADHD syndrome than is hyperactivity.

Though most professionals will now use the term ADHD to characterize these kinds of children, it can be expected that the older terms will continue to pop up in the professional

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literature and especially in the popular press and the media. This causes confusion for individuals trying to make sense of research studies, and certainly impairs the ability of lay people

to understand this disorder. It is not always clear that the different terms are being used interchangeably, and some subtle differences *do* exist among the conditions described by the

different terms. However, for the most part, "ADHD," "ADD," "hyperactive," "MBD," and even "brain injured" refer to the same condition as viewed at different points over the past 50 years.

CURRENT DEFINITION

According to *DSM-III-R* (1987), the essential features of ADHD are "... developmentally inappropriate degrees of inattention, impulsiveness, and hyperactivity" (p. 50). Recognition thus is given to the fact that younger children have higher rates of each of these three characteristics than older children. Hyperactivity, in fact, appears to diminish steadily through the school years, and may disappear altogether in adolescence. Attention problems and impulsivity persist, however. While manifestations of the disorder usually appear in every setting (home, school, with peers, etc.), it is recognized that signs "... may be minimal or absent when the person is receiving frequent reinforcement or very strict control, or is in a novel setting or a one-to-one situation (e.g., being examined in the clinician's office, or interacting with a videogame)" (p. 50).

Associated features of ADHD include low frustration tolerance and temper outbursts, low self-esteem, variable mood, and academic underachievement. While the disorder usually is not actually diagnosed prior to school entry, problems often are noted before age 4. Boys are diagnosed at least three times more often than girls. There appears to be a significant familial component — it is very common to find that relatives of

an ADHD child were considered to be hyperactive and inattentive when in school.

A major goal of the authors of *DSM-III-R* was to make diagnoses of disorders as objective as possible by focusing on observable characteristics. For ADHD, the diagnostic criteria (pp. 52-53) specify that the disturbance must have been ongoing for at least 6 months, and at least 8 of the following 14 behaviors must be present (at considerably greater frequency than observed for most other people of the same mental age):

- (1) often fidgets with hands or feet or squirms in seat (in adolescents, may be limited to subjective feelings of restlessness);
- (2) has difficulty remaining seated when required to do so;
- (3) is easily distracted by extraneous stimuli;
- (4) has difficulty awaiting turn in games or group situations;
- (5) often blurts out answers to questions before they have been completed;
- (6) has difficulty following through on instructions from others (not due to oppositional behavior or failure of comprehension), e.g., fails to finish chores;
- (7) has difficulty sustaining attention in tasks or play activities;

- (8) often shifts from one uncompleted activity to another;
- (9) has difficulty playing quietly;
- (10) often talks excessively;
- (11) often interrupts or intrudes on others, e.g., butts into other children's games;
- (12) often does not seem to listen to what is being said to him or her;
- (13) often loses things necessary for tasks or activities at school or at home (e.g., toys, pencils, books, assignments); and/or
- (14) often engages in physically dangerous activities without considering possible consequences (not for the purpose of thrill-seeking), e.g., runs into street without looking.

In addition to the above behaviors, *DSM-III-R* specifies that onset must have occurred prior to age 7. Based on the number and intensity of the observed behaviors, the ADHD additionally can be classified as "mild," "moderate," or "severe."

Unfortunately, the behaviors listed above are not limited only to the ADHD child. For example, children from disorganized, chaotic environments also may have difficulty sustaining attention and behaving in a goal oriented manner. Likewise, depressed children, or those

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with a variety of other emotional disorders, may exhibit attention problems. Further, physical illnesses, poor hearing and/or vision, and inadequate nutrition may result in behaviors which look the same as those which characterize ADHD. Differential diagnosis, thus, is not an easy task.

Though *DSM III-R* combines hyperactivity, inattention, and impulsivity into a single syndrome, many researchers and practitioners in the field empha-

size that attention deficits exist with *and without* hyperactivity. Those with hyperactivity draw attention to themselves through externalizing behavior such as aggression, and they therefore are diagnosed and treated at a higher rate. Children with attention deficits without hyperactivity, however, may be at equal or greater risk for academic and social difficulties. For example, in one study, 72% of a group of ADD children without hyperactivity were retained,

compared to only 17% of a group of ADD children who were hyperactive (Lahey, Schaughency, Strauss, & Frame, 1984). Those without hyperactivity tend to be more socially withdrawn, and their academic performance relatively poorer. Thus, though less visible and therefore less often diagnosed than their hyperactive counterparts, ADD children who are not hyperactive have serious problems which require assistance.

RELATIONSHIP TO SPECIAL EDUCATION CATEGORIES

Under current interpretations of PL 94-142, ADHD is not considered a separate "handicapping condition" (Bellamy, 1987). However, if the child's educational functioning is impaired by the disorder, special education services must be provided in the least restrictive environment upon determination of eligibility. When ADHD coexists with other handicapping conditions, the services may be provided as adjuncts to the child's program by making certain that appropriate interventions are included in the IEP. When no other handicapping condition is present, one option is to consider the child eligible for services in the "other health impaired" category.

Attention problems are commonly occurring characteristics of several specific handicapping conditions, especially learning disabilities and serious emotional disturbance. As such, their presence may lend supporting information for determination of eligibility for services under those categories.

LEARNING DISABILITIES

Do all LD children also have ADHD? The answer clearly is "no." Children may be LD primarily because of language-based problems, or due to visual or auditory perceptual difficulties, and have few symptoms of ADHD. However, many LD children do have substantial difficulties with attention,

impulsivity, and hyperactivity, to the extent that they can be considered ADHD as well. It appears reasonable to estimate that at least 33% of LD children are ADHD (Hallahan, 1989).

Are all ADHD children LD? Again, the answer is "no." While some have estimated the incidence of LD in attention deficit hyperactivity disorder youngsters to be as high as 80%, these estimates were based on children who came into specialized clinics for help; certainly these are not representative samples. Recent, carefully conducted epidemiological studies indicate that as few as 10-20% of ADHD children may qualify for LD services when criteria include utilization of regression formula-based aptitude/achievement discrepancy procedures (Shaywitz & Shaywitz, 1987). Since the federal "Rules and Regulations" for LD require a "severe discrepancy between achievement and intellectual ability," the majority of ADHD children will not qualify for LD diagnosis.

The substantial overlap which does exist between ADHD and LD is easy to understand. In the classroom, a child who cannot pay attention, or who cannot pay attention to the appropriate information, or who cannot overcome the impulse to respond before instructions are completed, obviously will not be able to learn efficiently. Gaps in the acquisition of hierarchically

structured skills such as reading and math, which build systematically from simpler to more complex learnings, will be common. Failure and the resulting frustration will build, eventually interfering with motivation, and then with subsequent performance, in a negatively spiraling fashion.

SERIOUS EMOTIONAL DISTURBANCE

Many emotionally disturbed (ED) children demonstrate enough characteristics of ADHD to carry both diagnoses. Likewise, many children who are diagnosed as ADHD exhibit serious social and emotional deficits. While the extent of overlap is difficult to pin down, investigators have reported co-occurrence of ED and ADHD in the 30%-65% range (Loney, 1987; Pelham & Murphy, 1986).

Which is primary? Does the emotional difficulty lead to attentional problems, perhaps because the resulting anxiety interferes with ability to concentrate? Or is there something about the nature of ADHD that predisposes children to develop social/emotional difficulties? The answer is not at all clear, and there probably are instances of both pathways to the eventual situation where a child is ADHD and ED. However, a case certainly can be made for ADHD being at the root of some subsequent emotional problems.

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Retrospective reports of parents of ADHD children frequently contain descriptions of a difficult child from infancy, with irregular rhythms, poor adaptability, negative mood, and high intensity of behaviors (e.g., Thomas, Chess, & Birch, 1968). What may then occur is an interaction — parents become frustrated when they recognize that their efforts at child management are ineffectual. The child is less reinforcing to parents than other children seem to be. By all outward appearances the child is normal; so there may be a tendency to blame themselves, and therefore feel less competent as parents, rather than to accept that the child is different through no fault of their own. The attentional problems and the impulsivity may interfere with such basic emotional/social processes as mother-child attachment.

In the homes of ADHD children we know that more negative interactions occur among family members (Schleifer et al., 1975). Both the child's initial symptoms and family interactional patterns influence the child's outcome at school age (Campbell, Breaux, Ewing, & Szumowski, 1986). Likewise, early peer interactions, which are precursors to later social satisfactions, are impaired in many ADHD children. At preschool ages ADHD children, especially those who exhibit

hyperactivity, are strikingly unpopular (Rubin & Clark, 1983). They seem to miss social cues which other children pick up more or less automatically. They have difficulty modulating behavior; and switching from one activity to another, or from one setting to another, is seldom done without incident. To the extent that the children are aware of the fact that others do not like them, their self-esteem may be negatively impacted, with resulting lack of confidence in their ability to develop and maintain rewarding relationships with others.

SPEECH, LANGUAGE, AND HEARING IMPAIRED

No direct relationship between speech problems and ADHD exists. Hearing impaired individuals do exhibit many behaviors similar to those of ADHD children, including not seeming to listen to what is said, difficulty following directions, etc. For this reason, when an attention deficit is suspected, it makes sense to check for auditory acuity to be certain that the child can hear normally.

A more subtle condition, central *auditory processing disorder* (APD), shares many more symptoms, and therefore is very easy to confuse, with ADHD. Children with APD often are described as "poor listeners," have short auditory attention spans, appear unable to

sustain attention to a task, and have trouble following directions, especially in noisy or acoustically poor settings. These children frequently also have high activity levels, though some are less active than normal, to the point of lethargy.

Making a diagnosis of APD versus ADHD is not a simple matter. Many children with APD have a history of hearing loss and/or of recurrent ear infections. Such a history should signal an evaluator to look even more closely for signs of the disorder. Other indicators include difficulty with phonics, trouble recalling the sequence of information heard, frequent requests that information be repeated (many "Huh?" and "What?" questions), poor verbal comprehension and vocabulary for age, and slow or delayed response to verbal stimuli. The APD child may also have language problems, indicated by such things as misunderstanding things said, confusing the order of words when speaking, and incorrectly using words. When this pattern of problems is encountered with a child thought to be ADHD, the child should be referred to a specialist for an evaluation of central auditory processing skills. Highly trained audiologists most frequently perform these assessments, though other speech and language professionals also may be able to provide that service.

Relationship to Special Education Categories **8**

MENTAL RETARDATION

Many features of ADHD may be present in mentally retarded (MR) children due to generalized intellectual delay. Thus, retarded children behave like much younger children, and higher levels of inattention, impulsivity, and motor activity are expected at younger ages. In order to be considered ADHD in addition to being MR, the relevant symptoms must be excessive for the child's *mental age*.

OTHER HEALTH IMPAIRED

Children who manifest the characteristics associated with the diagnosis of other health impaired may also have ADHD. This handicapping condition or category for special education services may be an option for accessing services for children manifesting ADHD symptoms. Other health impaired, according to state and federal regulations, means having limited strength, vitality or

alertness due to chronic or acute health problems such as heart condition, tuberculosis, rheumatic fever, nephritis, asthma, sickle cell anemia, hemophilia, epilepsy, lead poisoning, leukemia, or diabetes, which adversely affects a child's educational performance.

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PREVALANCE

Estimates of incidence rates of ADHD vary widely, from fewer than 1% to more than 20% of the population. This variation occurs because of the imprecision of terms such as "overactivity" and "impulsivity." As criteria for the disorder have become more objective, a clearer picture of prevalence has emerged. The best current estimates are that between 3% and 5% of school age children have this problem.

IDENTIFICATION AND ASSESSMENT

The actual diagnostic label "ADHD" usually is given by physicians (most commonly by pediatricians and child psychiatrists, though sometimes by neurologists) and by psychologists. Occasionally parents will initiate the evaluation by one of these professionals on their own. However, the typical route is for school personnel to note a concern and recommend that the parents have the child formally evaluated.

There is little consistency among professionals in the way the assessment for ADHD is performed. It is possible, however, to identify principles and procedures which, in most cases, *should* be followed in order to assure that the best diagnostic decisions are reached.

Use multiple sources of information. In addition to evaluating the child directly through tests and observations, it is very important to get information from parents, teachers, and others in the child's environment. Hopefully these different sources will be in concurrence. However, that often is not the case. Parents, especially, may not have an accurate perception of what is a developmentally appropriate level of attention, impulsivity, and activity. For example, one recent study (Shaywitz & Shaywitz, 1987) revealed that 76% of the parents of kindergarteners rated their

children as more active than normal. Their own child may be the only child of a given age with whom parents have extensive experience. Teachers tend to be better sources of information because they have a built in "norm group" in front of them every day. However, they too may be subject to a variety of biases.

Get information about functioning in different settings. For many years the assumption was made that if a child was ADHD, s/he would exhibit the symptoms in every situation. We now know that is not necessarily true. In free play activities, no differences in activity levels can be seen between ADHD and normal children (Routh & Schroeder, 1976). Likewise, an ADHD child may be able to sit and watch an interesting TV show, or may be able to attend intensively to a video game, for considerable time periods. In simple task situations, many ADHD children also do fine. It appears that the symptoms are seen most often when the tasks are difficult (i.e., the information load is high) and when they are asked to attend for relatively long time periods.

Assess all three dimensions of ADHD. The syndrome includes attention problems, impulsivity, and hyperactivity. While there is an emerging

consensus that inattention and impulsivity cause the child more problems than does overactivity, each of these should be evaluated. Obviously some overlap exists among these characteristics. However, each is a complex construct in its own right. An assessment for ADHD would be incomplete if it did not include a look at each of these components of the disorder.

Further, it is important to recognize the complexity of the constructs. Attention, for example, includes at least the following: being able to

- 1) focus, or come to attention;
- 2) choose which stimulus to focus on — "selective attention";
- 3) resist distractors in the environment; and
- 4) sustain attention over a reasonable time period — "attention span." Assessment of each requires looking at different kinds of information, or asking different questions.

Get multiple types of data. Interviews, observations, rating scales, psychoeducational tests, and specific tests for the assessment of attention, impulsivity, and activity all contribute to a comprehensive evaluation for ADHD.

1. Interviews. Most formal evaluations begin with obtaining a thorough developmental

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history from the parents. This includes information about any prenatal or birth complications, illnesses (especially those accompanied by high fevers), accidents involving head trauma, eating and sleeping patterns, acquisition of developmental milestones, general temperament (especially compared to siblings), child care and educational background, peer social status, parents' and siblings' social and academic levels, and the presence of any similar problems among family — including extended family — members. Most of the information acquired is considered important because of the assumed relationship between neurophysiological insults and later ADHD. We now know that the relationship is not direct. Many children with unfortunate histories of birth trauma, major illness, head injury, late walking and talking, etc., manage to function quite well. However, there are solid indicators that a disproportionate number of children with these histories become ADHD (Shaywitz & Shaywitz, 1987).

Another purpose of interviewing the parents is to get a sense of how the home is organized, and of what expectations are held for the child's behavior. Clearly there is an interaction between what the child brings to a situation (in terms of genetic predispositions to temperament, medical history, etc.) and the

environment of the home. Some children who would be predicted to do very poorly on the basis of their early developmental indicators end up doing fine because of the "goodness of fit" with their home environment. The opposite is also true. Further, it is important to have a feel for the home environment in order to select what treatment options have the highest likelihood of working effectively. How much can the parents be expected to participate in the intervention?

Interview information also should be obtained from the child's teacher(s), and from the child him/herself. Teachers can indicate the severity of the problem in comparison to other children in the class, the situations under which the behaviors of concern seem relatively better or worse, and the extent to which the problem is interfering with academic productivity and social acceptability. Children often can give surprisingly accurate descriptions of their own behaviors, including those not directly observable by someone else. For example, they may indicate what sorts of things grab their attention, or what the nature of troublesome distractions is (e.g., auditory versus visual). They also often can verbalize the extent to which they feel socially and academically incompetent, and how those feelings are affecting their

motivation and self-esteem.

A number of structured interviews are commercially available and/or have shown up in the literature. Homemade ones appear to be just as useful if they are thoughtfully done. When constructing the interview format, it is especially important to include questions relating to the 14 DSM-III-R criteria listed earlier.

2. Observations. Observations of the child's behavior in the naturalistic environment (especially the home and school) can provide the most direct indications of the presence or absence of the symptoms of ADHD. Interviews and rating scales are indirect, and they suffer from possible reporter biases. Tests given to the child are direct, but they usually are given in novel settings, usually on a one-to-one basis, and they typically involve novel tasks which thus may be more interesting to the child being tested than s/he would ordinarily confront; therefore, tests are more reactive, and they may provide unreliable indications of how the child does in the "real world." Careful observations avoid these problems. Their biggest disadvantage is the amount of time they require.

It seldom is possible to observe in the home environment, and even when it is, the presence of the observer sometimes interferes with the normal

behavioral flow of the family to such an extent that the validity of the observation is compromised. Therefore, most formal observations are done in the school setting. However, when obtainable, home observations can be quite valuable. Visiting teachers and school social workers have specialized training which makes them especially good resources for obtaining interview and observational data.

School observations should be done with careful thought to the time of day (Does the child do better/worse in the morning, or after lunch, than at other times?), and to the type of activity (recess, lunch, lecture, seatwork, group versus individual work, math versus reading versus writing, and complexity versus simplicity of the tasks). Usually the teacher can provide good information to aid the observer in targeting appropriate times of the day and activities during which the child is likely to exhibit the behaviors of concern for the evaluation.

Observation methodology can vary from merely watching the child to using complex, multiple behavior, multiple child, time sampling procedures which have been developed and used widely for the purpose. In order to make the observation as efficient as possible, it is important to have it planned and organized. Target behaviors which can be observed and counted

should be specified in advance. For example, if attention is the focus, an independent seatwork activity time might be chosen. The observer could operationally define attention as "looking at the materials and appearing to be engaged." Then, using a stopwatch, the observer would check "yes" for every time the child was seen to be paying attention at pre-set times, e.g., every time 15 seconds passed. In order to get a "normative" sense for how the target child compared with others, one or two classmates could be observed in the same manner. In one 25 minute period, this observer would have 100 possible times at which the behavior was observed. It then would be a simple matter to convert the results to a percentage of time on task, and to compare that with the norm for the class (as represented by the other classmates observed).

Among the more sophisticated classroom observation procedures which are used for the assessment of ADHD are the Revised Stony Brook Observation Code (Abikoff, Gittelman-Klein, & Klein, 1977) and the Classroom Observation System (Whalen, et al., 1978).

3. Rating scales. Rating scales are the most popular methods of assessing children's ADHD-like behavior. That is because rating scales are quick and inexpensive; they can be obtained from a variety of

individuals who have observed the child in different contexts over extended time periods; several of the popular measures have accumulated normative data for comparison purposes; and evidence regarding their reliability and validity often is available, and frequently is quite impressive compared to other types of assessment methods. For these reasons rating scales often are administered at different points in time for purposes such as evaluating the effects of interventions (like drug trials).

In format, rating scales typically consist of a statement regarding a behavior, e.g., "Has difficulty completing assignments," or "Has many friends." The rater usually is asked to check on a two through five point scale the extent to which that behavior is descriptive of the child. Two point scales consist of categories for "yes" and "no," or "true" and "not true." A five point scale would have categories such as "always," "usually," "sometimes," "seldom," and "never." Typically the good or positive direction of items is varied to avoid tendencies to respond with the same answer to repeated questions. The two examples above ("difficulty completing assignments" and "many friends") are reversed. Conners and Barkley (1985) provide a good review of child behavior rating scales relevant for use with ADHD children.

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Informants for rating scales usually are parents or teachers. Parents can give excellent information since they have observed the child's behavior in a variety of situations across an extended time frame. They also are highly motivated. However, the objectivity of their ratings may be compromised by their lack of exposure to other children of the same age, their desire to respond in socially desirable directions, and by any response tendencies they may bring to the ratings. Teachers tend to be more objective, though they usually are less invested in the process, and they have more limited exposure to the child's behavior.

a. Parent scales. The Conners scales have been the most widely used. Originally consisting of 93 items, the revised version (Goyette, Conners, & Ulrich, 1978) has 48 items. There also is a 10 item "Abbreviated Symptom Questionnaire" (ASQ), sometimes called the "Hyperkinesis Index" (Conners, 1973), which can be given to parents or teachers. The 48 item scale yields scores for "Impulsive-Hyperactive," "Learning Problem," and "Conduct Problem," though these are not as distinct as one might wish for ADHD identification purposes. For example, the Learning Problem scale contains inattention items like "distractible" and "fails to finish things."

Two other popular parent rating scales are the *Revised Behavior Problem Checklist* (RBPC) (Quay & Peterson, 1983) and the *Child Behavior Checklist* (CBCL) (Achenbach & Edelbrock, 1983). The RBPC has an "Attention Problems-Immaturity" scale which contains several items relevant to ADHD, but also includes immaturity items (e.g., "acts younger") which may confuse the issue. The CBCL has a Hyperactivity factor, and the overall scale is comprehensive and well normed. However, the Hyperactivity scale does not include items directly related to inattention; it focuses almost exclusively on excessive motoric activity.

A newer parent rating scale, the *Yale Children's Inventory* (YCI) (Shaywitz, Schnell, Shaywitz, & Towle, 1986), was developed explicitly for the assessment of ADD (as defined in *DSM-III*). Among the 11 scales are "Attention," "Impulsivity," and "Activity." While the scale is relatively new, early research results are encouraging regarding its usefulness for assessing these types of problems.

b. Teacher scales. As with the parent scales, the Conners Teachers Rating Scales are the most widely used. The 39 item version (Conners, 1969) has a 6 item "Hyperactivity" factor which has been used often in research studies.

A newer instrument,

developed with *DSM-III* criteria in mind, is the *ADD-H Comprehensive Teacher Rating Scale* (ACTeRS) (Ulmann, Sleator, & Sprague, 1984). Four empirically derived scales are included: "Attention," "Hyperactivity," "Oppositional Behavior," and "Social Problems." Good reliability and construct validity data have been reported, though the scale is too new for much data to have accumulated regarding predictive or concurrent validity.

4. Psychoeducational tests. Many of the tests given as part of the routine psychoeducational evaluation procedures performed in schools and clinics provide some information which can be useful in assessing ADHD. For example, both the *Wechsler Intelligence Scale for Children-Revised* (WISC-R) and the *Wechsler Adult Intelligence Scale-Revised* (WAIS-R) have subtests which contribute to a "Freedom from distractibility" factor. Likewise, the *Kaufman Assessment Battery for Children* (K-ABC) and the *Stanford-Binet Intelligence Scale: Fourth Edition* have short term memory tasks which are sensitive to attention and concentration problems. Unfortunately, poor scores on these measures also may occur for other reasons. For example, anxiety can lower performance on these tasks, as can short term memory difficulties. Also, as noted earlier, auditory processing problems can interfere with

functioning on those items which are presented verbally. Thus, results from standard psychoeducational tests can be used to signal the possibility of ADHD-type problems, but must be interpreted cautiously.

5. Specific tests of attention, impulsivity, and hyperactivity. Tests of sustained attention have been in use for a number of years. Of these, the "continuous performance tests" are best known. The child is asked to attend over a set period of time to a series of visual or auditory stimuli, and to indicate when a prearranged, low frequency stimulus occurs and to refrain from giving a response when it does not occur. For example, the child may be presented with a whole page filled with randomly ordered single digit numbers. S/he is to proceed row by row, circling any 9 which is preceded by a 5.

Errors of omission and commission are noted. Recently, several computerized versions of continuous performance tests have been marketed for the purpose of identifying ADHD children. For example, the Gordon Diagnostic System (Gordon, McClure, & Post, 1986) contains a vigilance task in addition to a delay task to measure impulsivity.

The most popular instrument for assessing impulsivity has been the *Matching Familiar Figures* test (MFF) (Kagan, Rosman, Day, Albert, & Phillips, 1964). The test requires the child to choose which of six highly similar figures is exactly like a standard figure. Both latency of response and accuracy are recorded. Impulsive responders are those who have shorter response times combined with more errors. Twelve and 20 item forms are available.

Copies of the norms are available from Neil Salkind at the University of Kansas.

Several procedures have been used to measure hyperactivity. For example, children have been observed in play room situations where the room is marked off into quadrants. Activity can be rated by the number of quadrant changes and by such things as the number of different touches of toys by the children. Recently, the development of an "actometer" that measures truncal activity over a prolonged period has provided a standard assessment procedure (Porrino et al., 1983). However, it seems unlikely that such sophisticated procedures are necessary in most instances, especially given the fact that hyperactivity seems to be a relatively unimportant aspect of the ADHD child's symptomatology.

THE SCHOOLS' ROLE IN THE ASSESSMENT AND DIAGNOSTIC PROCESS FOR ADHD

In the majority of cases, concerns about a child's attention and activity levels will arise first in the context of school. This occurs because school places greater demands on the child than s/he previously has experienced both for duration and intensity of attention. In still other cases, parents will be the first to express concern, but they will indicate their concern to school personnel rather than proceeding directly to a physician. How should the situation be handled from that point?

All schools in Virginia are required to have Child Study Committees to receive referrals and discuss alternatives for working with individual students. The focus of the Child Study Committee is on helping the child succeed in the regular classroom environment. Membership on the Committee varies from school to school, but is to include the Principal (or designee), the referring source, regular classroom teachers, and specialists who have expertise applicable to the case. Given the complexities associated with ADHD, knowledgeable staff should participate in making recommendations concerning ADHD children. This would eliminate inappropriate referrals. These knowledgeable professionals may include the psychologist, school nurse, counselor, and speech/language specialist when attention deficits are suspected.

Parental involvement should be sought as well during the Child Study process. A "case manager" should be appointed to keep track of the case, including the management of contacts with medical personnel. Guidelines for Child Study have been prepared by a task force of the Virginia Department of Education (1986). As with all other referrals, the goal of the Child Study Committee with ADHD children is to make sufficient alterations in the regular school environment so that the ADHD child can function well.

Sometimes the Child Study Committee will determine that the problems are beyond the scope of what regular education can provide. In those cases, referral for formal assessment of eligibility for special education is appropriate. If an evaluation is pursued, it must include the four components required by state special education regulations: educational, psychological, medical, and sociocultural. The eligibility committee may recommend to the parents that they consult a medical specialist with particular expertise in ADHD. Generally, developmental pediatricians, pediatric neurologists, and child psychiatrists are most familiar with ADHD issues, though many pediatricians have considerable experience with this disorder. If there are a number of appropriate medical personnel available in

the community, it is customary to give parents the names, addresses, and phone numbers of at least three. School personnel will need to become informed about physicians in this medical specialty. The Medical Society of Virginia can list physicians practicing in a specific area of the state. Local medical societies or academies, where they exist, can provide information about specialty areas of practice. Of course, if parents do not wish to have the medical evaluation done privately, the school division is responsible for securing the medical component. When ADHD is considered a possibility, school personnel should be certain that the physician conducting the evaluation has expertise with the disorder.

It is important for school personnel to communicate with the physician, especially in cases where some evaluation already has been done in the school context, in order that the diagnosis and subsequent treatment plans may be coordinated and comprehensive.

In a number of localities around the nation local school division personnel have been sued over issues related to diagnosis and treatment of ADHD. Typically the complaints have arisen when parents perceived that they were being forced to get medication for their child by school personnel. They have charged that, in effect,

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school staff were practicing medicine without a license. It is critical that personnel in schools recognize that the medical diagnosis of ADHD, and the prescription of drugs such as Ritalin, are appropriately to be left in the hands of trained physicians.

The special education Eligibility Committee must determine whether or not the child is eligible to receive special services. In order to qualify, the child must be "handicapped," and the handicap must impair school functioning. Since there is no separate ADHD condition specified under PL94-142 (as there is for LD, visually impaired, etc.), the situation can be complicated. Many ADHD children also will be found

eligible for special education as LD, and some as "seriously emotionally disturbed." In those cases, a child who also is ADHD can be served in existing programs, with the IEP expanded to include provisions necessitated by the attentional problems.

What if the Eligibility Committee determines that the child does have ADHD and the disorder is interfering with school functioning, but the child does *not* qualify as LD, ED, etc.? The category "other health impaired" may be an option for consideration. As with other children found to be handicapped and in need of services, an IEP then would be developed to specify annual goals and objectives for intervention, including the extent to which the

child would continue to participate in regular programs and the anticipated duration of services.

With ADHD children who are found to be handicapped, the program modifications specified on the IEP often will be even more individualized than is the case with other handicapped children. For example, longer time to take tests, or provision of social skills training, or alterations in the transportation arrangements may be considered. The school staff member who is most appropriate for overseeing implementation of the IEP may not be a teacher, especially if academic skill acquisition is not a problem for the particular ADHD child in question.

MEDICAL INTERVENTIONS

PHARMACOTHERAPIES

Medication, whether used alone or in combination with educational and psychological/psychiatric interventions, clearly is the most widely used procedure for management of ADHD. Drug treatment has been quite controversial for many years, and it remains so today.

As early as the 1930's it was noted that stimulants improved the functioning of hyperactive children, appearing to calm them down. At one time this effect was considered to be "paradoxical" in view of the fact that stimulants generally were thought to make normal individuals more active. In fact, one common suggestion for determining if a child was really hyperactive was to give a stimulant drug on a trial basis; if the effect was calming, then the child was considered hyperactive. It is now recognized, however, that normal children also respond positively to stimulant medications, with improved attention and concentration reported for normal children and adults in a number of studies (e.g., Rapoport et al., 1980; Werry, 1982). Another prominent misconception had to do with the effects of puberty on children taking stimulants. This belief was influenced considerably by Laufer and Denhoff's (1957) assertion that the symptoms of hyperactivity "...wane spontaneously and disappear,"

thus indicating that ADHD is only a childhood disorder. As stated earlier, while motoric activity does abate, inattention and impulsivity continue through adulthood. Stimulant medications appear to maintain their usefulness at least through adolescent years.

How helpful are stimulant medications? Careful research studies, using control groups and "double blind" procedures with placebos so that there was no way for the child, the parents, or the teachers to determine when a child was and was not receiving medication, clearly indicate that stimulant drugs have a positive effect in 60-80% of diagnosed ADHD children (e.g., Barkley, 1977; Shaywitz & Shaywitz, 1987). These effects include improved attention, lessened quantity and intensity of motoric activity, improved compliance to parents' and teachers' requests, increased appropriate social interaction, higher efficiency at problem solving tasks, and increased academic productivity.

How do the drugs work? While this remains a question for further research, it generally is believed that most ADHD children have a neurochemical imbalance in which the neurotransmitters which carry impulses in the brain are affected. This results in an underarousal. The drugs appear to stimulate those parts of the brain involved

in transmitting information, especially at the neural synapses, so that the brain functions more efficiently.

Three drugs account for the vast majority of prescriptions for ADHD. All three are stimulants. Since these are seen so frequently, information about each will be provided.

METHYLPHENIDATE HYDROCHLORIDE - "RITALIN."

Ritalin is the trade name for the drug which is, by far, the most commonly used. In fact, considerable concern has been expressed that Ritalin may be being grossly overprescribed, at an ever-increasing rate, with the effect that far too many children are "drugged" in school. Data do not support these concerns. The best estimates available indicate that prevalence rates for any drug treatment for ADHD range from 0.75% to 2.6% of the school population, depending on age of the children and on location in the United States. A careful analysis of the amount of Ritalin ordered by pharmacists and the amount produced by the pharmaceutical company (CIBA) indicated that there was little increase from 1980-86 (Shaywitz & Shaywitz, 1987). Of course these data do not preclude the possibility that some physicians in some locations are prescribing the medications to an excessive extent.

Ritalin comes in 5, 10, and 20 milligram (mg.) doses. The recommended initial dose is based on how large the child is. Usually, .3 mg for each kilogram of body weight is the starting dosage, to be given once or twice a day. Since a kilogram is a little over two pounds, a 70 pound child might be started with a 10 mg dose. The maximum dose is usually .8 mg/kg. Ritalin's effects occur very quickly. Typically it begins to take effect within 30 minutes, and it reaches its peak levels within 2-3 hours. Thus, if it is given at around breakfast time, it will be exerting its effects by the time the child is involved in school work. It lasts no more than 4-6 hours for most children. Therefore, a second dose at around lunch time may be necessary, especially if the academic load is heavy in the afternoon. Generally, it is best to place the child in the more academic subjects in the morning so that the attentional processes will be maximal when they are most needed.

A slow release Ritalin (Ritalin-SR) has been introduced in the past few years. It comes in 20 mg doses. It was hoped that this would allow the child to avoid having to take a second dose during the school day. Initial reports about this drug have been disappointing, however. Apparently, the release of the drug is variable, depending to a considerable extent on the

individual child's metabolism. Thus, Ritalin-SR is not prescribed as often as the other types, unless there are reasons why the child cannot or will not take the drug at school.

DEXTROAMPHETAMINE -

"DEXEDRINE." Dexedrine is used considerably less often than Ritalin, apparently in part because of the reputation which is in the public's mind of the drug being an often abused street drug ("speed"). However, there are indications that Dexedrine is equally as effective as Ritalin. Dosage levels generally are one half that of Ritalin. Dexedrine is absorbed at about half the rate of Ritalin, so it may be necessary to take the initial dose a little earlier in the morning.

PEMOLINE - "CYLERT." Cylert is a newer drug. Research indicates improvement rates similar to Ritalin and Dexedrine for attention problems. One disadvantage to Cylert is that the drug's full effects require several days or even weeks to be seen, and once stopped, it is not fully eliminated from the system for several more days. This makes it more difficult to evaluate how much of any change in behavior which occurs is due to the drug effects.

Dosage levels of Cylert are unusual. It comes in capsules of 18.75, 37.5, and 75 mg. Initial dosage is .5 mg/kg, with a

normal maximum dose of 3 mg/kg. It is given only once a day, in the morning, which is an advantage since neither the child nor school personnel must be involved in a second dose during the day.

At this point, Cylert appears to be prescribed in cases where side effects were noted with Ritalin and/or Dexedrine, or in situations where the issue of taking a medication at school was seen as problematic.

Side effects. The two most common side effects of stimulant medications are loss of appetite and difficulties in sleeping. Sometimes involuntary movements occur, and some reports of depression have been noted. There was fear that these drugs would result in growth retardation. However, more recent research indicates that long term effects are quite minimal at normal dosage levels (Shaywitz & Shaywitz, 1987). Stimulant medications can exacerbate the symptoms of other disorders, including multiple tic disorders such as Tourette's Syndrome and psychiatric disorders such as depression and schizophrenia. However, there are no indications that the drugs cause these disorders. Usually these side effects can be managed by reducing the dosage level, or by switching to another drug.

An important finding from research studies of the last few years is that the ideal dosage

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level for cognitive effects such as attention and memory is substantially lower than that required for changes in activity level (e.g., Shaywitz & Shaywitz, 1987; Sprague & Sleator, 1977). Thus, if the assessment of the drug's effects is based only on how much the activity level is decreased, there is a good possibility that the dosage will be too high to achieve positive effects on school performance.

"Drug holidays," periods such as weekends and summer vacations when the child is not given the medication, often are recommended. The idea is to maximize the effect of the drug when it is given, and to minimize the possibility of growth retardation to the extent pos-

sible. This generally is a good idea unless the child's behavior during the time off the medication is such that it interferes with family or other social functioning. If the family is taking a trip together in a car, for example, they may find that the negative interactions among family members which may be spurred by the ADHD child far outweigh the positive effects of the drug holiday.

While there can be little doubt about the positive effects of stimulant medications in increasing attention for the majority of ADHD children, this intervention is extremely limited in scope. For one thing, there remain 20-40% of children for whom the positive effects are not

seen. More importantly, when the drugs are effective, they merely make it possible for the children to behave and to learn more normally in the future. The drugs do not cure poor social skills or negative behavior patterns which have been learned in the past; nor do they make the child smarter; nor will the child suddenly be able to do math problems which they did not understand because they could not pay sufficiently good attention when the concept was taught a year or two earlier. Thus, it is critical that a comprehensive treatment program be implemented for the ADHD child. Such a program must include school and home.

SCHOOL-BASED INTERVENTIONS

CLASSROOM ALTERATIONS

Since it is in the school environment that the majority of ADHD children experience their most serious difficulties, it is obvious that alterations to the typical setting and instructional program of the schools will be required if the ADHD child is to succeed. Of course many ADHD children also are identified as LD or ED. For those children special environments such as self contained or resource classes, with specially trained teachers, may already be part of the educational program. Many diagnosed ADHD children are not eligible for formal special education services, however. Regardless of the nature of the classroom and of the training of the teachers, many of the suggestions offered below (adapted from Cobb, 1987) can be useful. These suggestions can be adapted to meet the needs of middle and high school students as well as elementary students. Middle and high school students often require extra assistance and understanding because of their poor study and organizational skills.

1. Place the child in the least distracting location in the classroom. This may be in the front of the classroom, but should be away from doors and windows. It may be necessary to have the child face a blank wall, or to provide a special

work place away from the group.

2. Provide as much structure and routine as possible. Keep the routine the same from one day to another. When transitions or unusual events are to occur, try to prepare the child for what is to come by explaining the situation and describing appropriate behaviors in advance.
3. For individual seat work, help the child get started. It may prove helpful to have the child verbalize to you what the task is and how they are to approach it. Check back periodically to see if the child is still on track.
4. Make frequent contact with the child by touching or by speaking the child's name. Be sure that you have his or her attention before speaking.
5. Generally, multiple modalities of instruction will be more effective in maintaining attention and increasing learning. Thus combining a visual tactile approach with verbal instruction will be preferable to verbal instruction alone.
6. Adapt work sheets so that less material is on each page.
7. Break assignments into smaller chunks. Do not

expect that the child will be able to work independently for lengthy time periods.

8. Give the child extra time to work on assignments when needed, without criticism or fanfare.
9. If the child has trouble staying in one place for long periods of time, alternate desk, standing, group, and moving around activities throughout the day.
10. Use learning aids such as computers, typewriters, calculators, tape recorders, etc. These seem to structure learning, and they also maintain interest by their nature.
11. If note taking is a problem, arrange to have a more attentive classmate share notes by photocopying or using carbon paper.
12. Use multiple choice tests or one-on-one oral tests to determine the child's mastery of content.
13. Give regular feedback, and praise success.

Three major models for school based interventions have been used frequently. One is **stimulus reduction**, based on the belief that eliminating distractors in the environment is the best way to ensure that the ADHD child will focus on the appropriate stimuli. Placing the

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child in study carrels to avoid visual distractions and using ear plugs to eliminate auditory distractors are examples of this technique. The stimulus reduction procedures seem to work well with some children, though certainly they are insufficient by themselves to manage the ADHD child's educational program. Another set of techniques which have proven useful in managing the behavior of ADHD children come from **behavior modification**, including systematic rewards as well as non-aversive punishments such as "time out" and "response cost" programs.

Both stimulus reduction and behavior modification have been criticized on the grounds that they foster dependence on contrived and externally controlled events. Research has indicated that many ADHD children accept a passive posture when confronted with academic tasks. They rely on adults to structure situations for them and to provide them with problem solving strategies. There is concern that setting up a non-distracting environment for the child, providing tangible reinforcements, and perhaps administering drugs to the child encourage the ADHD child's dependence and passivity by not allowing or requiring the child to develop and use his or her own strategies.

Over the past decade or so, the most prominent approach to

teaching academic and social behavior to ADHD children has become **cognitive behavior modification (CBM)**. CBM procedures attempt to make the children consciously aware of their own thinking processes and strategies, and to give them responsibility for their own reinforcement. An example is provided by Hallahan, Lloyd, and Stoller (1982). They describe a self-monitoring program for improving attention. After describing the purpose of the program to the child and giving some practice, the child goes to work on a regular seatwork assignment. When the child hears a piano note (pre-recorded on a tape recorder to go off every so many seconds or minutes), the child is to ask, "Was I paying attention?" The child then marks "yes" or "no" on a paper attached to the top of the desk. If the answer is "yes," the child congratulates him/herself; if "no," statements are verbalized about why and how to attend. This type of intervention has been very effective for specific behaviors such as paying attention during seatwork. Broader applications of CBM approaches also have been developed to aid the child in generating problem solving strategies for all types of academic tasks as well as for approaching homework, social situations, etc.

No single approach, including CBM (see Abikoff,

1987), has been uniformly successful. Since ADHD children present with multiple problems, combined rather than alternative treatments are necessary.

An important function of school personnel is to serve as the eyes and ears for the physician when stimulant medications have been prescribed. Initial prescriptions always are subject to modifications, with the goal of finding the best fit for an individual child. However, most physicians are quite limited in their capability to follow up to determine how a specific dosage of a given drug is affecting a child's behavior in the school environment. While some school personnel feel it is presumptuous of them to initiate contact with physicians for the purpose of feedback, such links are very important in the total management of the ADHD child. It is a rare physician who would not welcome the information. Once contacts are established, future relationships are much more likely to be cooperative, and that certainly will benefit children. The designated contact person between the schools and the physician also should make sure that parents are included in the "feedback loop." In many cases, it will be simplest for the school's contact person to acquire and communicate parent perceptions regarding medication effects at the same time that

school information is provided to the physician. Of course parents need to know what is happening at school as well.

When ADHD children must take medication at school, it is very important that school personnel handle the situation sensitively. In most schools, drugs must be administered through the school office or the school nurse. Teachers must avoid embarrassing the child by announcing, in front of the whole class, "Time to go take your medicine." Likewise, office staff must be sensitized to the potential emotional harm which can come from singling out the ADHD child in this way. The medication should be handled discretely, with respect for the privacy and dignity of the child.

A related issue has to do with the common mistake made by teachers and parents of giving the medication too much credit or blame for the child's behavior. When the child is misbehaving, s/he should not be asked, "Have you taken your pill?" Such questioning, associated that directly with bad or good behavior, fosters the belief in the child that s/he is not responsible for the behavior.

Since the social skill deficits of ADHD children may be as debilitating to their functioning as are academic deficiencies, many school divisions have instituted interventions in this area, too. Some teachers include social skills information as part of their curriculum. More commonly, counselors, school

psychologists, or social workers will work directly with ADHD children around these issues. Sometimes this is done one-to-one, but more often small groups provide a better setting for the training. The best approach is direct instruction with plenty of opportunity for modeling and practice with feedback. Topics can be as simple as "making eye contact when talking to someone" or "how to shake hands." Other topics typically include recognizing emotions, what to do when you are angry, how to make friends, etc. Several social skill programs are commercially available. These provide useful instructional aids such as hand puppets, stimulus pictures, and vignettes of social situations.

PARENT/FAMILY ISSUES

Raising children is a trying, humbling experience for parents in the best of situations. There are times in every family when stress levels are elevated to the breaking point. For families with an ADHD child, the task is particularly difficult. The child is not as reinforcing as are other children — s/he is harder to love, and the pressure is more constant. To a much greater extent than with other children, parents must oversee every part of the ADHD child's life. At home, the child's room typically is messy and disorganized; getting dressed and ready for school often requires direct help from the parent, and may turn into a battle at any time; structured situations such as meal-times can be disastrous; and family outings may turn into embarrassing fiascos at any time. Peer interactions have to be monitored, and sometimes contrived, due to the unpopularity of the child. Homework frequently is not completed without regular supervision. Yet,

with all this, the child looks normal and seems intelligent. It would be easier, perhaps, to accept the behavior if the underlying problem were more evident.

For many parents, having a clear and definitive diagnosis is the first step toward learning to cope with the difficulties. It is important that parents be given as much accurate information as possible about the disorder. They may benefit greatly from reading about the problem and how others have dealt effectively with it. Physicians and school personnel can be sources if they will educate themselves and make material available. Open and frequent communication with teachers and others involved in the child's educational program is essential.

Often parents and other family members can benefit from counseling/therapy with qualified mental health professionals who have an understanding of ADHD. Child management

issues frequently are topics of concern, but all kinds of other normal problems of living may be exacerbated by living with an ADHD child.

Many parents have found it very helpful to get their child involved in activities outside the home. Sports may be one good outlet for the child. Generally, ADHD children have considerable trouble with sports like baseball which are highly rule-governed and which require that the player concentrate even when no overt action is occurring. Sports like soccer usually are better choices because of their constant action and more "free form" nature.

In some locations, parents of ADHD children have formed support groups which seem to have great benefit. Since parents may not know who else is in a similar situation, school personnel or physicians may need to serve some initial coordinating functions in helping to get such groups started.

CONTROVERSIAL INTERVENTIONS

All sorts of other therapies have been proposed for children with attention deficit hyperactivity disorder. Those discussed below are among the more popular. They have several shared characteristics: their introduction often is through the popular media rather than in scientific journals; their theoretical justification is inconsistent with current scientific knowledge; studies which do not support the therapy are explained away by referring to the hesitancy of the scientific and medical establishment to accept new ideas; the danger of adverse side effects is minimized by noting that the treatment relies on the use of "natural" substances (special diets, vitamins), simple manipulations of the body, or exercises; and lay organizations often emerge which proselytize for the treatment (Shaywitz & Shaywitz, 1987).

DIETARY ALTERATIONS

The best known therapy of this type is the *Feingold Diet*, a food-additive free diet. In 1975 Feingold wrote a book (*Why Your Child is Hyperactive*) based on anecdotal experiences from his pediatric practice. Since then countless families have attempted to implement the diet in hopes of improving their child's functioning. However, in a review of 13 controlled studies utilizing the Feingold Diet,

Wender (1986) concluded that food colorings and other additives had *little or no effect* on the hyperactive behavior of children. To date, no carefully designed studies have supported the diet.

More recently, concerns about the relation of sugar and ADHD have received great publicity. Practicing physicians (45% in one survey—Bennett & Sherman, 1983) often recommend low sugar diets to their ADHD patients. Research using double-blind, placebo methodology has produced no convincing evidence to establish a relationship between sugar and adverse behavior of ADHD children.

Massive doses of vitamins (*megavitamin therapy*) have been suggested as another dietary intervention. However, no research support for this procedure exists, either.

NEUROPHYSIOLOGICAL PATTERNING

Doman and Delacato (Delacato, 1966) proposed a regimen designed to restore integrated neurological functioning in children whose behaviors were assumed to be the result of brain-injury. The therapy involves externally manipulating the child into body patterns (e.g., crawling) thought to be characteristic of the level of the damaged brain, imposing hemispheric dominance and laterality, administering carbon dioxide therapy, and stimulating

the senses to improve body awareness. The regimen requires a great deal of time and, often, specialized equipment. After evaluating the research evidence, a number of organizations joined the American Academy of Pediatrics (1965) in their conclusion that patterning has no special merit, the claims of its advocates are unproven, and the demands on families are so great that harm may result from its use.

NEGATIVE EFFECTS

Interventions such as dietary therapies and patterning are obviously appealing to some parents and professionals. While perhaps not helpful, at worst these have been considered harmless. However, it is important to recognize the potentially adverse effects of such approaches. Most clear is the harm from diverting parents' energies from well-documented methods to non-productive regimens. If parents believe that following a specialized diet, which may require extra shopping and more preparation time, is critical, they are less likely to have the energy or time to see that their child's teacher is providing an optimal classroom environment. Further, other children in the family may be forced to eat the same food, increasing their resentment for their ADHD sibling. Also, there often is considerable expense

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involved in these unproven treatments.

While thought to be innocuous, idiosyncratic therapies may later be shown to have unexpected side effects. Oxygen

therapy for treating respiratory problems in premature infants also was felt to be safe when initially instituted. Oxygen is a natural substance, but it is now known that its use with infants

can produce blindness and other problems. Controversial therapies for ADHD also may be shown to be dangerous with the passage of time.

CONCLUSIONS

ADHD is a complex, frequently misunderstood condition which impacts all parts of the affected child's life. Optimal school functioning can be achieved only when professionals in and out of the school environment and the child's parents develop a comprehensive understanding of the disorder and work together to meet the child's needs.

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COMMONWEALTH of VIRGINIA

DEPARTMENT OF EDUCATION

P.O. BOX 2120

RICHMOND 23216-2120

TO: Reader

FROM: Harley Tomey, Specialist
Learning Disabilities

DATE: February 6, 1995

RE: New DSM-IV Definition of Attention-Deficit/Hyperactivity Disorder

Recently, the American Psychiatric Association published its fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV). This new edition replaces the DSM III-R and includes a revision of the criteria for Attention-Deficit/Hyperactivity Disorder (pp. 78-85). The attached three page document is to replace the Current Definition section found in this publication, Attention Deficit Hyperactivity Disorders and the Schools.

If you have any questions or would like more copies of this publication or Supts. Memo. No. 1, dated October 2, 1991, Clarification of Responsibility to Address the Needs of Children with Attention Deficit Hyperactivity Disorder. Please call me at (804) 371-8283.

HAT/ht
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CURRENT DEFINITION

According to DSM IV (1994) the essential feature of ADHD is "a persistent pattern of inattention and/or hyperactivity-impulsivity that is more frequent than is typically observed in individuals at a comparable level of development" (p.78). These symptoms may be manifested in academic, occupational, and/or social situations. It is believed that most individuals will have symptoms of both inattention and hyperactivity-impulsivity. However, there are some individuals who will have symptoms that are predominantly those of inattention while others will have symptoms that are predominantly those of hyperactivity-impulsivity. The appropriate determination should be based on the predominant symptom pattern for the past 6 months. Thus, the three subtypes of ADHD are

ADHD, Combined Type. This subtype should be used if six or more symptoms of inattention and six or more symptoms of hyperactivity-impulsivity have persisted for at least 6 months.

ADHD, Predominantly Inattentive Type. This subtype should be used if six or more symptoms of inattention but fewer than six symptoms of hyperactivity-impulsivity have persisted for at least 6 months.

ADHD, Predominantly Hyperactive-Impulsive Type. This subtype should be used if six or more symptoms of hyperactivity-impulsivity but fewer than six symptoms of inattention have persisted for at least 6 months. However, inattention may often still be a significant feature.

The diagnostic criteria for ADHD (pp. 83-85) is based upon observable characteristics. It specifies that the following occur:

- Either A or B:
 - A. Six or more of the following symptoms of inattention have been persistent for at least 6 months to a degree that is maladaptive and inconsistent with the developmental level of the individual:
 1. often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities
 2. often has difficulty sustaining attention in tasks or play activities
 3. often does not seem to listen when spoken to directly
 4. often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions)
 5. often has difficulty organizing tasks and activities

6. often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as school work or homework)
7. often loses things necessary for tasks or activities (e.g., toys, school assignments, pencils, books, or tools)
8. is often easily distracted by extraneous stimuli
9. is often forgetful in daily activities

B. Six or more of the following symptoms of hyperactivity-impulsivity have been persistent for at least 6 months to a degree that is maladaptive and inconsistent with the developmental level of the individual:

Hyperactivity

1. often fidgets with hands or feet or squirms in seat
2. often leaves seat in classroom or in other situations in which remaining seated is expected
3. often runs about or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness)
4. often has difficulty playing or engaging in leisure activities quietly
5. if often "on the go" or often acts as if "driven by a motor"
6. often talks excessively

Impulsivity

7. often blurts out answers before questions have been completed
8. often has difficulty awaiting turn
9. often interrupts or intrudes on others (e.g., butts into conversations or games)

In addition to the above behaviors, DSM-IV specifies that

- some hyperactive-impulsive or inattentive symptoms that caused the impairment must be present prior to the age 7, even though many individuals are diagnosed after the symptoms have been present for a number of years,

- some impairment from the symptoms is present in two or more settings (e.g., at school or work, at home and/or in social situations). However, it is very unusual for an individual to display the same level of dysfunction in all settings or within the same setting at all times. In fact, signs of the disorder may be minimal or absent when the individual is under very strict control, in a novel setting, engaged in especially interesting activities, in a one-on-one situation, or while the individual experiences frequent rewards for appropriate behavior,
- there must be clear evidence of clinically significant impairment in social, academic, or occupational functioning, and
- the symptoms do not occur exclusively during the course of a psychotic disorder and are not better accounted for by another mental disorder (e.g., Mood Disorder, Anxiety Disorder, or a Personality Disorder).

NOTE: Those individuals (especially adolescents and adults) who currently have significant symptoms that cause functional impairment but no longer meet the full criteria can be diagnosed as **ADHD-In Partial Remission**.

Those individuals with prominent symptoms of inattention or hyperactivity-impulsivity but do not currently meet the full criteria for ADHD and it is unclear whether criteria for ADHD has previously been met, can be diagnosed as **ADHD-Not Otherwise Specified**.

Some of the associated features of ADHD, which vary depending on age and developmental stage, may include low frustration tolerance, temper outbursts, bossiness, stubbornness, excessive and frequent insistence that requests be met, mood lability, demoralization, rejection by peers, and poor self-esteem. Academic achievement is often impaired and devalued, which may lead to conflict with family and school authorities. Also, inadequate self-application to tasks that require sustained effort may be interpreted by others as indicating laziness, a poor sense of responsibility, and oppositional behavior. Family relationships are often characterized by resentment and antagonism, especially because variability in the individual's symptomatic status often leads parent to believe that all the troublesome behavior is willful.

Finally, while the disorder is not usually diagnosed prior to school entry, problems are often noted before age 4. Boys are diagnosed at least three times more often than girls. There appears to be a significant familial component – it is very common to find that relatives of a child with ADHD were considered to be hyperactive and inattentive when in school.

American Psychiatric Association (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.) Washington, DC: Author.



COMMONWEALTH of VIRGINIA

DEPARTMENT OF EDUCATION

P.O. BOX 2120

RICHMOND 23216-2120

TO: Directors of Pupil Personnel
Directors of Special Education
Principals
Parent Resource Centers

FROM: Harley Tomey, Specialist
Learning Disabilities

DATE: February 6, 1995

RE: New DSM-IV Definition of Attention-Deficit/Hyperactivity Disorder, ADHD

As noted in Supts. Memo. No. 14, Informational dated January 27, 1994, the purpose of the memo is to alert you to the new definition of ADHD recently published in the American Psychiatric Association's fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) and to make sure that parents, teachers, support personnel, and administrators are informed. This memo is not to endorse or refute the new DSM-IV definition but to make sure that you have this information since it will be used by professionals when determining if an individual has ADHD.

DSM-IV which replaces the DSM III-R includes a revision of the criteria for Attention-Deficit/Hyperactivity Disorder (pp. 78-85). This new edition includes a discussion of the diagnostic features of ADHD; the three subtypes; associated features and disorders; specific culture, age, and gender features; prevalence of ADHD; familial patterns; and differential diagnosis. The diagnostic criteria are provided for each subtype of ADHD. There is also a discussion of the use of two new diagnoses, ADHD In Partial Remission and ADHD Not Otherwise Specified.

The attached four page document is to replace the Current Definition section found in the Department of Education's publication, Attention Deficit Hyperactivity Disorders and the Schools. If you have copies of this document, please make sure to include a copy of the attached document when you distribute it. This will inform parents, teachers and administrators of the most current DSM-IV definition and criteria for the diagnosis of ADHD.

ANALYSIS OF CHANGES IN CRITERIA FOR ADHD

The following are the major changes in the criteria for ADHD.

- Three subtypes are identified, each with their own criteria. They are:

ADHD, Predominantly Inattentive Type;
ADHD, Predominantly Hyperactive-Impulsive Type; and
ADHD, Combined Type.

NOTE: In DSM-III-R the diagnosis was only ADHD, however, the 14 DSM-III-R behavior descriptors are found in the three subtypes either verbatim or in a modified form in DSM-IV also four new behavior descriptors have been added.

- "Some impairment from the symptoms is present in two or more settings (e.g., at school or work, at home and/or in social situations)."

NOTE: In DSM-III-R cross settings impairment was implied but not as clearly stated as it is in DSM-IV.

- There must be "clear evidence of clinically significant impairment in social, academic, or occupational functioning."

NOTE: In DSM-III-R there was a range of severity from mild to moderate to severe which is not included in DSM-IV.

- The symptoms do not occur exclusively during the course of a psychotic disorder and are not better accounted for by another mental disorder (e.g., Mood Disorder, Anxiety Disorder, or a Personality Disorder).

NOTE: In DSM-III-R the only criterion is "does not meet the criteria for a Pervasive Developmental Disorder" even though the importance of a differential diagnosis was discussed.

- Individuals (especially adolescents and adults) who currently have significant symptoms that cause functional impairment but no longer meet the full criteria can be diagnosed as ADHD-In Partial Remission.

NOTE: In DSM-III-R this could have been included under Undifferentiated Attention-Deficit Disorder.

- Those individuals with prominent symptoms of inattention or hyperactivity-impulsivity, but who do not currently meet the full criteria for ADHD and where it is unclear whether the criteria for ADHD have previously been met, can be diagnosed as ADHD-Not Otherwise Specified.

NOTE: In DSM-III-R this could have been included under Undifferentiated Attention-Deficit Disorder.

AMERICAN PSYCHIATRIC ASSOCIATION REVISION PROCESS

The American Psychiatric Association reports that its revision process went through a three-stage empirical process that included:

- **Comprehensive and Systematic Review of the Published Literature:** The goal of the DSM-IV literature reviews was to provide comprehensive and unbiased information and to ensure that DSM-IV reflects the best available clinical and research literature. To assist the work groups in this endeavor conferences were provided to help articulate for all work groups a systematic procedure for finding, extracting, aggregating and interpreting data in a comprehensive and objective manner.
- **Reanalysis of Already-Collected Data Sets:** When a review of the literature revealed a lack of evidence or conflicting evidence for the resolution of an issue, two additional resources were used to help make final decisions. These were reanalyses and field trials. Researchers at different sites collaborated by subjecting their data to the questions posed by the DSM-IV work groups. These questions concerned criteria included in DSM-III-R or potential criteria to be included in DSM-IV. As a result, the data reanalysis made it possible to generate several criteria sets that were then examined in DSM-IV field trials.
- **Extensive Issue-Focused Field Trials:** The DSM-IV field trials allowed the work groups to compare alternative options and to study the possible impact of suggested changes. The field trials compared DSM-III, DSM-III-R, International Classification of Diseases and Related Health Problems-10th edition (ICD-10) and the proposed DSM-IV criteria. The field trials collected information on the reliability and performance characteristics of each criteria set as a whole as well as of specific items within each criteria set. These trials also helped to bridge the boundary between clinical research and clinical practice by determining how well suggestions for change that are derived from clinical research finding apply in clinical practice. The 12 field trials included more than 70 sites and evaluated more than 6,000 subjects.

It should be noted that according to the authors of DSM-IV, the threshold for making revisions in DSM-IV was set higher than that for DSM-III and DSM-III-R. Decisions had to be substantiated by explicit statements of rationale and by the systematic review of

relevant empirical data. If empirical data justified it, criteria sets were clarified and simplified. Also there was an attempt to strike a balance in DSM-IV with respect to historical tradition as embodied in DSM-III and DSM-III-R, compatibility with ICD-10, evidence of literature reviews, analysis of unpublished data sets, results of field trials, and consensus of the field. Also, the authors noted that major changes to solve minor problems required more evidence than minor changes to solve major problems. For more information on the process used you may either contact the American Psychiatric Association, 1400 K Street, N.W., Washington, DC 20005 or read the introduction of the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV).

Finally, while this memo is to be informative, one needs to remember that a school division may not refuse to evaluate a student for the need for special education and related services solely by reason of a prior medical diagnosis of ADHD, and conversely, a school division can not require a medical diagnosis of ADHD prior to the evaluation for the need for special education and related services. Each school division has an affirmative obligation to evaluate a child who is suspected of having a disability to determine the child's need for special education and related services. The evaluation must be conducted in accordance with Part B regulations of IDEA and the Regulations Governing Special Education Programs for Children with Disabilities in Virginia. If you have any questions regarding ADHD or would like copies of the Department's publication, Attention Deficit Hyperactivity Disorders and the Schools, and Supts. Memo. No. 1, dated October 2, 1991, Clarification of Responsibility to Address the Needs of Children with Attention Deficit Hyperactivity Disorder. Please call me, Harley Tomey, at (804) 371-8283.

HAT/ht
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